

TWO NEW SPECIES OF *COMMIPHORA* JACQ.

J. J. A. van der Walt

(Botany Department, University of Stellenbosch)

ABSTRACT

Commiphora cervifolia and *C. gracilifrons* are described. *C. cervifolia* was discovered recently. *C. gracilifrons* was incompletely described by Dinter. The possible relationships of the two species are indicated.

UITTREKSEL

TWEE NUWE SOORTE *COMMIPHORA* JACQ.

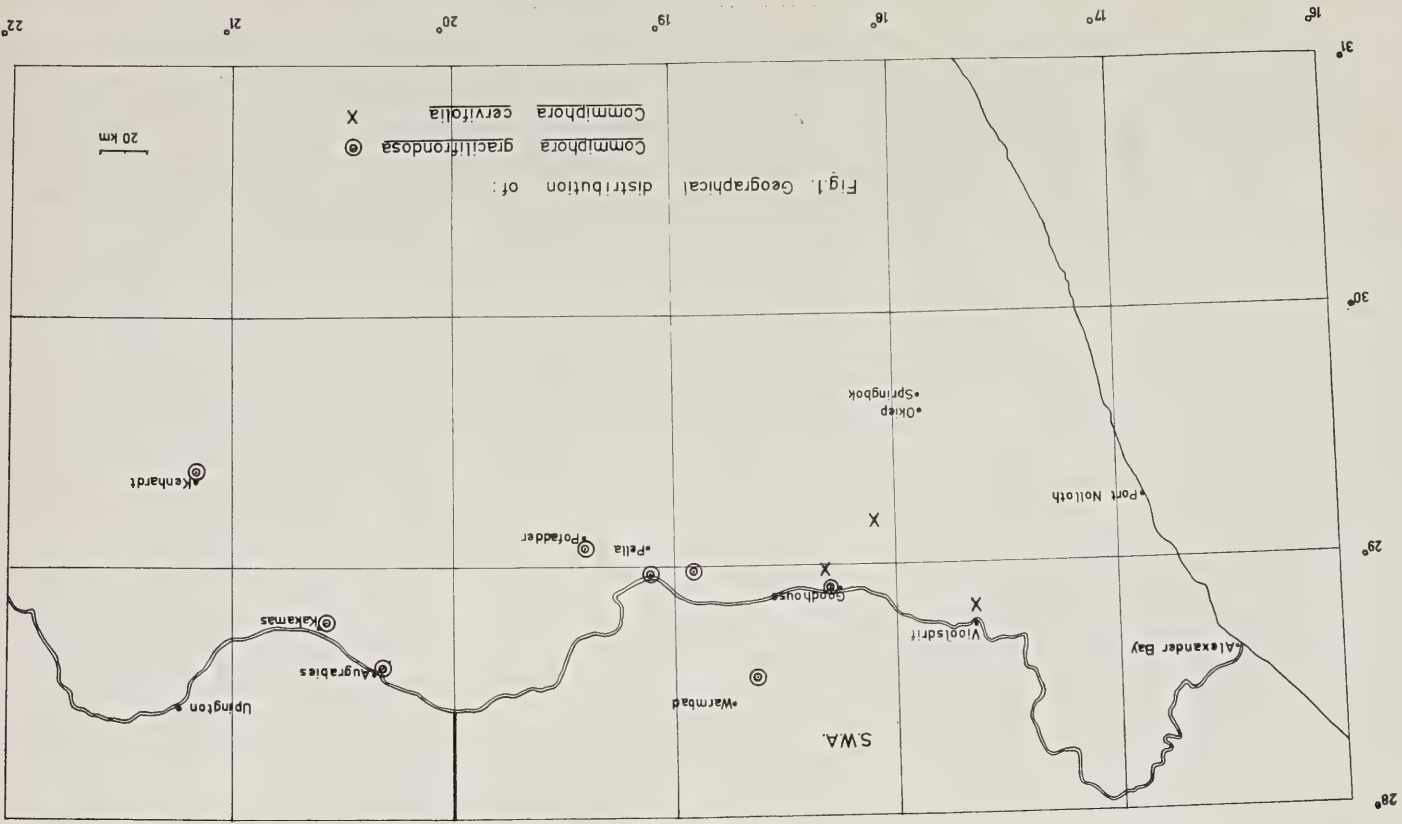
Commiphora cervifolia en *C. gracilifrons* word beskryf. *C. cervifolia* is onlangs vir die eerste keer ontdek, terwyl *C. gracilifrons* vroeër onvolledig deur Dinter beskryf is. Die moontlike verwantskappe van die twee spesies word ook aangedui.

Commiphora cervifolia Van der Walt, species. nova, *C. capensis* (Sond.) Engl. habitu, foliis trifoliolatis, absentia pseudarilli affinis, sed ab eo foliolis cultratis et irregulariter lobatis, petalis parvis, ramulus crassis et brevibus differt.

Frutex dioecius as 2 m altus. *Truncus* ramificans iterum atque iterum super planum soli, facie succulenta; ramuli multi breves et crassi. *Folia* trifoliolata ad 1,5 cm longa; foliola parva cultrata et irregulariter lobata. *Flores* unisexuales perigyni. *Calyx* carnosus et glandulosus. *Petala* parva. *Fructus* ellipsoideus, assymetrice complanatus, sine pseudarillo.

Type: Cape, 8 km S. of Vioolsdrif, *Van der Walt* 128 (PRE, holo; PRU).

Dioecious shrub up to 2 m high. *Trunk* branching repeatedly above soil level, appearing succose, with numerous short, stout, glandular side branches; bark grey-green to yellow-brown with dark patches. *Leaves* trifoliolate, up to 1,5 cm long, sparsely glandular; petiole up to 5 mm long; leaflets small, cultrate, mostly irregularly lobed, apex acute to obtuse, base cuneate, margins entire irrespective of lobes; terminal leaflet up to $1 \times 0,2$ cm; lateral leaflets up to $0,8 \times 0,2$ cm. *Flowers* unisexual, perigynous, appearing before the leaves, solitary or in axillary dichasial cymes up to 2 cm long; male flowers, 6-7 mm, usually larger than female flowers, 5-6 mm. *Bracts* up to 0,5 mm long lanceolate, sparsely glandular. *Pedicels* 1-1,5 mm long, sparsely glandular. *Calyx* yellow-green to brown. 1,7-2,2 mm long, fleshy, broadly ampanulate, continuous with hypanthium, sparsely glandular, lobes up to 2 mm long, apex



acute. *Petals* yellow-green to brown, 2—3 mm long. *Disc* forming 4 fleshy lobes, fused with hypanthium. *Stamens* 8, 4 up to 3 mm long, 4 up to 2,2 mm long; filaments slender, subterete, lower part flattened and broadened; staminodes



FIG. 2.

Commiphora cervifolia, on farm "Geselskapbank", near Goodhouse (height 0,5 m).

in female flowers. *Gynoecium* rudimentary in male flowers; ovary sparsely glandular; style short, sparsely glandular; stigma obscurely 4-lobed. *Fruit* 1,1 × 1 cm, ellipsoid, asymmetrically flattened; exocarp smooth; mesocarp thin; endocarp smooth, 9 × 8 mm, ellipsoid, asymmetrically flattened with one face rather deeply convex and one shallowly convex, without pseudaril.

Diagnostic features: Dioecious shrub. Trunk branching repeatedly above soil level, appearing succose, with numerous short, stout side branches. Leaves trifoliate up to 1,5 cm long, leaflets small, cultrate, irregularly lobed. Flowers perigynous, calyx fleshy and glandular, petals small. Fruit ellipsoid, without pseudaril.

The species is apparently confined to the semi-desert areas of the N. W. Cape from Goodhouse in the east to Vioolsdrif in the west. No material could be

traced in any of the South African herbaria to verify further occurrences of the species geographically. A photograph of the leaves was sent to Merxmüller, but he declared that he had never seen material collected in S.W.A. It occurs at the foot or on the slopes of the arid mountains or koppies in the vicinity of the Orange River in areas with an annual rainfall of less than 80 mm.



FIG. 3.

Commiphora cervifolia.

A, branchlet with young leaves and inflorescences.

B, branchlet with leaves and fruits.

C, leaves.

CAPE.—2817 (Vioolsdrif): 8 km S. of Vioolsdrif (-DC), *Van der Walt* 128 (PRE; PRU). 2818 (Warmbad): 13 km S.E. of Goodhouse (-CD), *Van der Walt* 115 (PRE; PRU). 2918 (Gamoep): 56 km N.E. of Okiep on farm Geselskapbank (-AA), *Van der Walt* 123 (PRE; PRU).

C. cervifolia is probably closely related to *C. capensis* (Sond.) Engl. The two species have many characteristics in common, especially as far as growth form, external features of the stems and fruits are concerned. Although both species have trifoliate leaves, the form of the leaflets differs considerably. The leaflets of *C. capensis* are rotund or obovate or cordate with finely lobed margins. The calyx of *C. cervifolia* is more fleshy than that of *C. capensis* while the petals are smaller than those of the latter species.

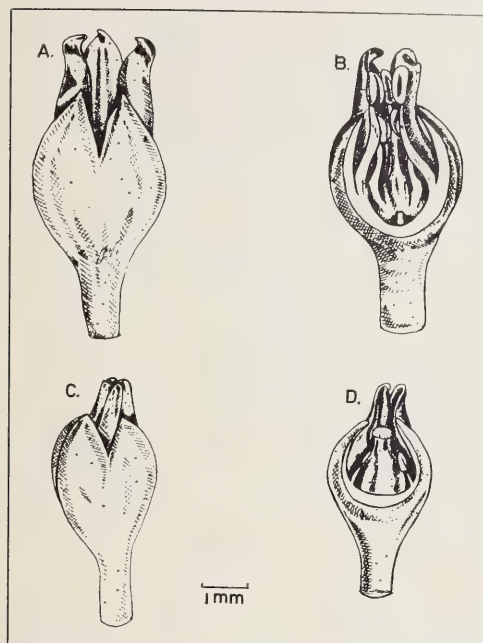


FIG. 4.
Commiphora cervifolia.
 A, male flower.
 B, longitudinal section of male flower.
 C, female flower.
 D, longitudinal section of female flower

Living shoots, on being touched, exude an aromatic secretion in such quantities that the stems become wet. The form of the leaflets with the irregular lobes, resembles the antlers of a stag hence the name of the species.

Commiphora gracilifrondosa Dinter ex Van der Walt, species nova (Dinter in Feddes Rep. Beih. 53: 48 (1928), nomen subnudum), *C. oblancoolata* Schinz habitu, foliis trifoliolatis et stminibus quatuor affinis, sed ab eo foliis majoribus et petiolis longioribus, foliolis linearibus ad cultratis et marginibus irregulariter et paulo grosse dentato-serratis differt.

Frutec dioecious ad 3 m altus. *Truncus* ramificans iterum atque iterum super planum soli, facie succulenta; ramuli graciles. *Folia* trifoliolata ad 6 cm longa; foliola variabilia linearia ad cultrata marginibus irregulariter et paulo grosse dentato-serratis. *Flores* unisexuales perigyni. *Calyx* sparsim glandulosus. *Stamina* vel *staminodia* quatuor. *Fructus* subglobosus ad ellipsoideus, asymmetrice complanatus; pseudarillus cupulatus dvis brachiis.

Type: S.W.A., Warmbad, near Auros, Dinter 5124 (BOL, holo; S!; B†).

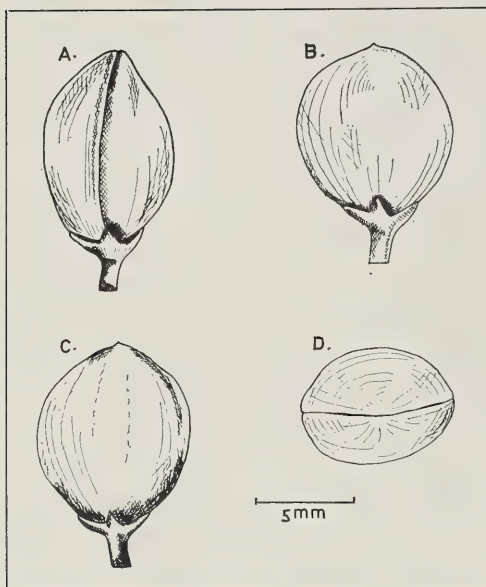


FIG. 5.

Commiphora cervifolia.

A, fruit.

B, deeply convex face of endocarp.

C, shallowly convex face of endocarp.

D, endocarp seen from apex.

Dioecious shrub up to 3 m high. *Trunk* branching repeatedly above soil level, appearing succose, young branches slender and glandular; bark red-brown with dark patches. *Leaves* trifoliolate but terminal leaflet sometimes 3-lobed, up to 6 cm long, sparsely glandular; petiole up to 2 cm long, sparsely glandular; petiolules up to 3 mm long; leaflets variable in size and form, linear to cultrate, margins irregularly and rather coarsely dentate-serrate, apex obtuse to acute, base cuneate; terminal leaflet up to $4,3 \times 0,2$ cm, lateral leaflets up to $3,5 \times 0,2$ cm. *Flowers* unisexual, perigynous, appearing before or with the leaves in axillary dichasial cymes or occasionally solitary, branches of inflorescence sparsely glandular, male inflorescence up to 5 cm long, female inflorescence up to 1 cm long; male flowers, 6—7 mm, usually larger than female flowers, 4—5 mm. *Bracts* up to 4 mm long, linear, sparsely glandular. *Calyx* yellow-green, 1,2—1,5 mm long, campanulate, continuous with hypanthium, sparsely glandular, lobes up to 1 mm long, apex acute. *Petals* yellow-green, 2,5—3,5 mm long. *Disc* forming 4 fleshy lobes, fused with hypanthium. *Stamens* only 4, up to 2,5 mm long, inserted on disc-lobes; filaments slender, subterete, lower part flattened and broadened; anthers relative large; staminodes in female flowers. *Gynoeceum* rudimentary in male flowers; ovary sparsely glandular; style long, sparsely glandular; stigma obscurely lobed. *Fruit* $1 \times 0,8$ cm,

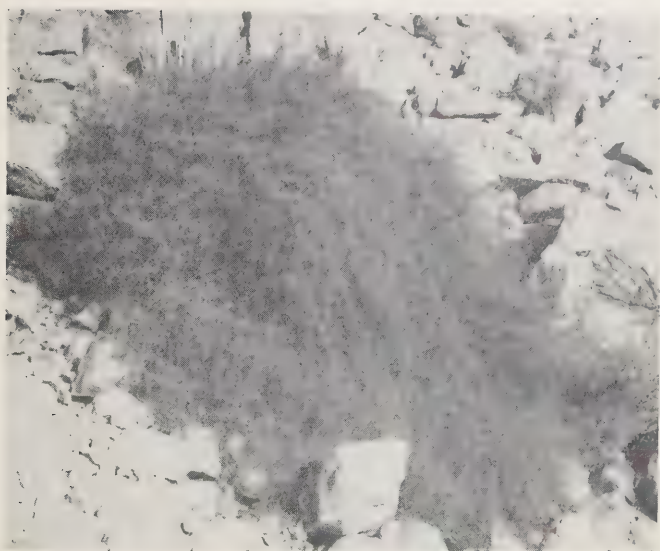


FIG. 6.

Commiphora gracilifrondosa, near Pella (height 1,5 m).

subglobose to ellipsoid, asymmetrical, slightly flattened; exocarp smooth; mesocarp thin; endocarp smooth, 8×5 mm, ellipsoid, assymmetrically flattened with one face deeply convex and the other shallowly convex; pseudaril red, not very fleshy, cupular with 2 arms on ridge of stone, pseudaril covers the lower $\frac{1}{2}$ of the shallowly convex face of stone and the lower $\frac{1}{4}$ of the deeply convex face.

Diagnostic features: Dioecious shrub. Trunk branching repeatedly above soil level, appearing succose, young branches slender. Leaves trifoliate up to 6 cm long, leaflets variable, linear to culture and the margins rather coarsely dentate-serrate. Flowers perigynous, stamens/staminodes 4. Fruit subglobose to ellipsoid, pseudaril cupular with 2 arms.

C. gracilifrondosa occurs in N.W. Cape with collections from Kenhardt in the east to Goodhouse in the west. It is also recorded from the southern part of S.W.A. It grows on the arid mountains and koppies in the vicinity of the Orange River in areas with an annual rainfall up to 160 mm.

S.W.A.—2818 (Warmbad): near Auros (-DA), *Dinter 5124* (BOL; S).
Cape.—2818 (Warmbad); 5 km E. of Goodhouse (-CD), *Van der Walt 124* (PRE; PRU);
27 km W.N.W. of Pella (-DD), *Van der Walt 119* (PRE; PRU). 2819 (Ariamsvlei); 8 km N.

of Pella (-CC), *Van der Walt* 116 (PRE; PRU). 2820 (Kakamas): near Augrabies (-CB), *Pearson* 3567 (BOL); near Kakamas (-DC), *Fuller* 24 (BOL). 2919 (Pofadder): 6 km N.E. of Pofadder (-AB), *Acocks* 21795 (PRE). 2921 (Kenhardt): S. of Kenhardt (-AC), *Hutchinson* 952 (BOL).

Several herbarium specimens of *C. oblanceolata* Schinz, among them the type (Dinter 1497), were examined. The male flowers of both *C. gracilifrons* and *C. oblanceolata* have 4 stamens. In all descriptions of *Commiphora* species seen so far, the number of stamens was given as 8. It seems likely that the two taxa are closely related. The leaves differ so markedly, however, that they can be considered as two different species. The leaves of *C. oblanceolata* are small (1—1.5 cm long); the petioles seldom exceed a length of 7 mm and the leaflets are oblanceolate with finely serrate margins, which are never lobed.

De Winter who examined the Kew specimens of the two taxa, was convinced that *C. gracilifrons* should be considered as a distinct species (letter at Botanical Research Institute, Pretoria). Merxmüller (1970) also recommended that *C. gracilifrons* should be described in detail. Dinter's (1928) description of the species is as follows: "Dicht vor Auros sammelte ich auf einem Granit-

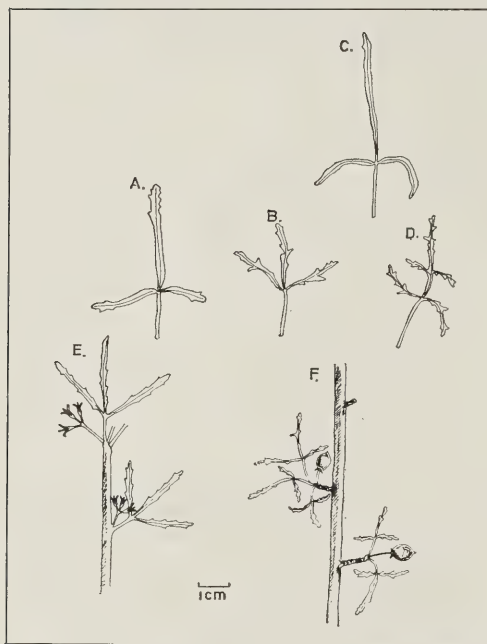


FIG. 7.
Commiphora gracilifrons.
A-D, leaves.
E, branchlet with leaves and inflorescences.
F, branchlet with leaves and fruits.

blockhügel Zweige einer *Commiphora* mit aussergewöhnlich zierlicher dreizähliger Belaubung und trotz ihres flaschenförmigen holzigsukkulenten Stammes sehr dünnen Endzweigen". A few descriptive words have thus been added, which possibly would facilitate identification of the plant. Therefore, the name cannot be designated as a true "nomen nudum".

It was observed that goats and game graze on the young branches. The local name of "Suikerkan" is probably derived from the sweet taste of the wood.

ACKNOWLEDGMENTS

Thanks are due to Mr. E. G. H. Oliver who compiled the Latin diagnoses, and to Prof. Dr. H. P. van der Schijff for his co-operation in the preparation of the paper. I am also grateful to Prof. Dr. H. Merxmüller and Dr. B. de Winter for their advice. The type specimen of *C. oblanceolata* was kindly lent to me by the Director of the "Botanisches Museum", University of Zürich. The research project was supported by a grant from the C.S.I.R.

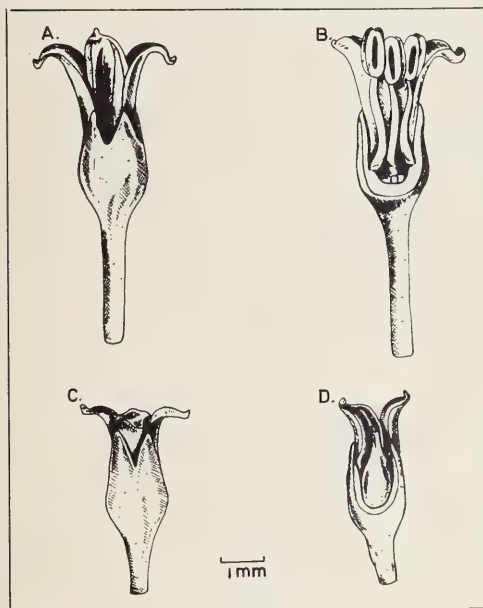


FIG. 8.
Commiphora gracilifronsosa.
 A, male flower.
 B, longitudinal section of male flower.
 C, female flower.
 D, longitudinal section of female flower.

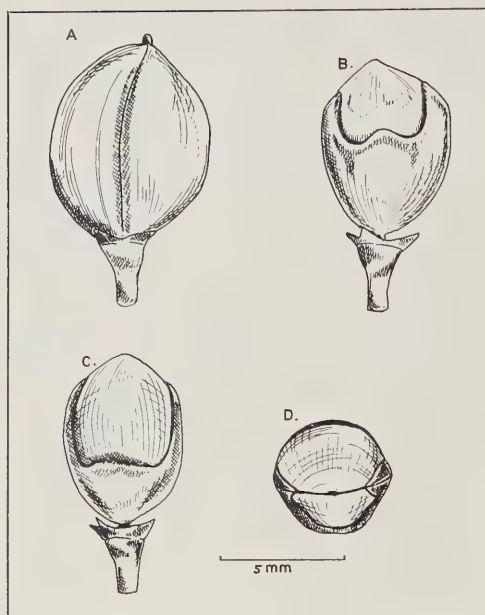


FIG. 9.

Commiphora gracilifrons.

A, fruit.

B, deeply convex face of endocarp with pseudaril.

C, shallowly convex face of endocarp with pseudaril.

D, endocarp with pseudaril seen from the apex of endocarp.

REFERENCES

- DINTER, K., 1928. *Commiphora gracilifrons* Dinter. *Feddes Rep. Beih.* 53; 48.
MERXMÜLLER, H., 1970. Written communication.